

CLAIMS

What is Claimed is:

1. A method for identifying contours within pixel-based image data, comprising:
 - expressing said image data as a grid of columns and rows;
 - establishing a scan order over said grid to define a parent-child relationship between contiguous pixels in adjacent rows and to define a sibling relationship among non-contiguous pixels in the same row;
 - establishing a run data structure in computer-readable memory that defines a run member by its row position and by its starting and ending column positions;
- 5 10 said run data structure further defining parent, child and sibling structures for storing information about the parent-child relationships and sibling relationships of pixels associated with said run member;
 - scanning said image data according to said scan order to identify contiguous pixels of a predetermined state as identified run members;
- 15 20 determining the parent-child and sibling relationships of said identified run members;
 - populating said run data structure with the row position and starting and ending column positions of said identified run member and with the parent-child and sibling relationships of said identified run member;
 - using said populated run data structure to traverse the parent-child and sibling relationships and thereby identify contours within said pixel-based image data.

2. The method of Claim 1 further including the steps of:
generating reconstructed circles based on broken contours, the
reconstructed circles uniquely identified and separate from any other circles
which overlap the reconstructed circle.

3. The method of Claim 1 wherein the predetermined state is a
tone, a color and combinations thereof.

4. The method of Claim 1 wherein the parent-child and sibling
relationships are pointers which establish a linked list of the run member data
structures.

5. The method of Claim 1 further includes the steps of:
identifying the first run member occupying a row position and starting
and ending column positions;
determining all parent-child and sibling relationships of pixels
associated with the first run member;
identifying additional run members based on the parent-child and
sibling relationships; and
wherein a connected component is retrieved based on identifying links
from the parent-child relationships.